Part 9 · Spot the Mistake

Each solution below reaches a wrong answer, and exactly one step is to blame. Find the first wrong step and rewrite it correctly. Marking other people's work is the fastest way to stop making their mistakes.

🔍 Spot the Mistake

Finding PQ when radius = 5 cm, OQ = 12 cm

Step 1. Since PQ is tangent, $\angle OPQ = 90^\circ$.

Step 2. By Pythagoras, $OQ^2 = OP^2 + PQ^2$, so $PQ^2 = OQ^2 + OP^2 = 144 + 25 = 169$.

Step 3. $PQ = 13$ cm.

_____ The first wrong step is Step _____ . What should it say?

_____

🔍 Spot the Mistake

Tangent length from a point A, OA = 5 cm, radius = 4 cm

Step 1. ΔOPA is right-angled at P, since tangent $\perp$ radius.

Step 2. $AP^2 = OA^2 + OP^2 = 25 + 16 = 41$.

Step 3. $AP = \sqrt{41}$ cm.

_____ The first wrong step is Step _____ . What should it say?

_____

🔍 Spot the Mistake

Number of tangents from a point inside a circle

Step 1. A point P is taken inside the circle.

Step 2. Every line drawn through P meets the circle in two points.

Step 3. So exactly one tangent can be drawn from P.

_____ The first wrong step is Step _____ . What should it say?

_____

One right angle — tangent meets radius at 90° — and one pair of equal segments — tangents from an external point — unlock every question in this chapter. Spot them, and the rest is Pythagoras and congruent triangles. ⊙